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Connex MD, Inc.
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Seattle, WA 98103-0577

EXAMINER

PATEL, KANJIBHAI B

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2625

DATE MAILED: 06/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,781

Applicant(s)

THIRSK, GRAHAM

Examiner

Kanji Patel

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Drawings filed on 8/6/01 have been approved by the examiner.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(A) as being unpatentable over a combination of Pelanek (US 6,067,075) and Cantoni (US 6,115,486).

For claim 1, Pelanek discloses a method for transmitting a plurality of clinical images from a database (CD 10 in figure 4 acts as a database to provide medical images; column 4, lines 21-27; medical images are transmitted or loaded from CD to review station 34; CD reader 100 in figure 4 reads images from CD 10) of clinical images to a reviewer (user of review station 34 acts as a reviewer), the method comprising:

providing a very low resolution copy of at least some of the clinical images from the database (column 2, lines 50-60; images are recorded on CD 10 using lossey compression and lossless compression for two different mode of operation, Real time Mode and Detail Mode; when there is a request for a very low resolution copy of

images, a Real time mode is used) to the reviewer such that the reviewer can request an image for review;

receiving a request for a first clinical image (a single frame function 232 in figure 4 allows a user to move one frame at a time, forward or reverse) from the reviewer;

transmitting a low resolution copy of the first clinical image in a relatively highly compressed form to the reviewer (column 4, lines 53-60; Real Mode is used to transmit low resolution copy);

preparing a relatively less compressed and lossy higher resolution copy of the first clinical image (column 4, lines 53-60; a Detail Mode is used to prepare a relatively less compressed and lossy high resolution copy) at least in part simultaneously with transmitting the lower resolution copy of the first clinical image to the reviewer (user of review station 34 is a reviewer); and

upon receipt of a request for higher resolution (column 4, lines 53-60), transmitting the higher resolution copy of the first clinical image (232) to the reviewer (34).

Pelanek differs from claim 1, in that he does not clearly disclose the use of network for transmission of images. However, in an analogous art, Cantoni discloses an improved imaging sequence storage and transmission (see at least column 6, lines 10-40). It would have been obvious to one of ordinary skill in the art to use network for image transmission as shown by Cantoni for a medical image review station platform of Pelanek because such a modification will make the system of Pelanek very accurate and rapid storage, analysis and transmission of image sequences either in the

catheterization laboratory, to another review location in the hospital or a remote location (see column 5, lines 50-55).

For claim 2, Pelanek discloses the method of Claim 1, wherein the higher resolution copy (column 2, lines 55-60) of the first clinical image (232) comprises higher spatial resolution than the lower resolution copy (column 2, lines 50-53) of the first clinical image (232).

For claim 3, Pelanek discloses the method of Claim 1, wherein the higher resolution copy (column 2, lines 55-60) of the first clinical image (232) comprises higher temporal resolution than the lower resolution copy (column 2, lines 50-53) of the first clinical image (232).

For claim 4, Palenek discloses the method of Claim 1, wherein the clinical images comprise ultrasound images (column 5, lines 64-66) from a patient examination.

For claim 5, Pelanek discloses a method for transmitting a plurality of clinical images (30 in figure 1) from a database (10) of clinical images to a reviewer (34 in figure 1), the method comprising:

providing a very low resolution copy of at least some of the clinical images from the database (column 2, lines 50-60; images are recorded on CD 10 using lossey compression and lossless compression for two different mode of operation, Real time Mode and Detail Mode; when there is a request for a very low resolution copy of images, a Real time mode is used) to the reviewer (user of review station 34 acts as a reviewer), wherein each very low resolution copy is associated with a dynamic sequence of images (a cardiology motion image source 30 in figure 1 provides a

Art Unit: 2625

dynamic sequence of images), such that the reviewer (34) can request an image for review;

receiving a request for a first clinical image from the reviewer (a single frame function 232 in figure 4 allows a user to move one frame at a time, forward or reverse);

transmitting a low resolution copy (column 2, lines 50-53) of an intermediate image from the dynamic sequence of images associated with the first clinical image (232) in a relatively highly compressed (column 2, lines 50-53) form to the reviewer (column 4, lines 53-60; Real Mode is used to transmit low resolution copy);

preparing similarly low resolution copies of first additional images (column 2, lines 50-53) from the dynamic sequence of images (30; column 2, lines 40-47; cardiology motion image source provides the dynamic sequence of images) associated with the first clinical image (232) at least in part simultaneously with transmitting the intermediate image; transmitting the low resolution copies (column 2, lines 50-53) of the first additional images to the reviewer(34);

preparing similarly low resolution copies of second additional images (column 2, lines 50-53) from the dynamic sequence of images (30) associated with the first clinical image (232) at least in part simultaneously with transmitting the first additional images (232); and transmitting the low resolution copies (column 2, lines 50-53) of the second additional images to the reviewer (34).

Pelanek differs from claim 5, in that he does not clearly disclose the use of network for transmission of images. However, in an analogous art, Cantoni discloses an improved imaging sequence storage and transmission (see at least column 6, lines 10-

40). It would have been obvious to one of ordinary skill in the art to use network for image transmission as shown by Cantoni for a medical image review station platform of Pelanek because such a modification will make the system of Pelanek very accurate and rapid storage, analysis and transmission of image sequences either in the catheterization laboratory, to another review location in the hospital or a remote location (see column 5, lines 50-55).

For claim 6, Pelanek discloses the method of claim 5, wherein the preparation and transmission of additional images can be interrupted by the reviewer (column 4, lines 44-50; user can interrupt the transmission of images by switching rapidly between any of the speed, real time, slow or still images).

For claim 7, Pelanek discloses the method of Claim 6, wherein the reviewer (34) interruption may include a request for higher resolution images (224), the method further comprising the steps of: receiving a request for higher resolution images (224): transmitting a high resolution copy of an intermediate image from the dynamic sequence of images (30) associated with the first clinical image (232) in a relatively less compressed form to the reviewer (34); preparing similarly high resolution (224) copies of first additional images (232) from the dynamic sequence of images associated with the first clinical image (30) at least in part simultaneously with transmitting the intermediate image; and transmitting the high resolution copies (column 2, lines 55-60) of the first additional images to the reviewer (34).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Cantoni (US 6,115,486).

For claim 8, Cantoni disclose a system (figures 1-3) for transmitting clinical images from a database of images to a reviewer comprising:

a server (26 is a server) comprising a processing unit, a storage device containing the database of images, and first software capable of running on the processing unit, the first software adapted to retrieve, compress, and transmit clinical images from the database of images (figure 3; column 8, lines 12-31);

a review station (28 is a review station) accessible to the reviewer and connected to the server (26) through a network, the review station comprising a processing unit, a display capable of displaying clinical images from the database of images, and second software adapted to request, receive and display clinical images from the database of images (column 10 line 64 to column 11 line 22);

wherein the first software is adapted to receive requests from the second software for at least one specified clinical image from the database of images, and upon

receipt of such request compresses the requested at least one clinical image using a relatively low resolution compression scheme, and transmits the low resolution compressed image to the review station for display (column 8, lines 12-31); and further wherein the first software is adapted to receive requests from the second software for higher resolution, and upon receipt of such request compresses the specified at least one clinical image using a relatively high resolution compression scheme, and transmits the high resolution compressed image to the review station for display (column 10 line 64 to column 11 line 22; column 11, lines 25-67).

For claim 9, Cantoni discloses the system of claim 8, wherein the first software is further adapted to prepare the higher resolution (column 9, lines 33-66) compressed image at least in part simultaneously with transmission of the low resolution compressed image to the review station.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-11 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Cantoni (US 6,115,486) as applied to claims 8-9 above and further in view of Pelanek (US 6,067,075).

For claim 10, Cantoni does not clearly disclose system wherein the database of images comprises images from ultrasound examinations. However, Pelanek discloses a medical image review station comprising storage of ultrasonic images on a optical compact disk (see column 5, lines 65-67). It would have been obvious to a person skilled in the art at the time of the invention to use the database with ultrasonic images as shown by Pelanek into the system of Cantoni because such a modification will make the system of Cantoni to archive and review any medical images such as, MRI, US, CT, PET, NM, etc, as shown by Pelanek in column 5, lines 65-67.

For claim 11, while Catoni is silent regarding the higher resolution compressing does not remove any clinically relevant information from the compressed image, Pelanek discloses the system wherein the higher resolution compression scheme does not remove any clinically relevant information from the compressed image (column 2, lines 53-60). It would have been obvious to a person skilled in the art to use Pelanek's teaching into the system of Cantoni in order to review medical images in Real time or Detail mode as shown by Pelanek in column 4, lines 53-54.

Other prior art cited

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Walling (US 4,945,410) discloses a satellite communications system for medical related images.

Chang et al. (US 6,711,297) disclose methods and apparatus for dynamic transfer of image data.

Cantoni (US 6,115,486) discloses a teleradiology system for the storage and transmission of angiographic and related image sequences.

Pelanek (US 6,067,075) discloses a controller for medical image review station.

Schuman et al. (US 6,440,072 B1) disclose a medical diagnostic ultrasound imaging system and method for transferring ultrasound examination data to a portable computing device.

Schmitt et al. (US 5,865,745) disclose a remote health care information input apparatus.

Cooke, Jr. et al. (US 6,574,629 B1) disclose a picture archiving and communication system.

Reitan (US 5,600,574) discloses an automated image quality control.

Buytaert et al. (US 5,654,555) disclose a system for supplying a processed radiographic image to a remote device.

Contact information

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Kanji Patel** whose telephone number is (703) 305 4011. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 6:30 p.m. Friday off. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, **Mehta , Bhavesh**, can be reached on (703) 308- 5246.

Any inquiry of general nature or relating to the status of this application should be directed to the **Group receptionist** whose telephone number is (703) 305-3800. The

Fax number for this group is (703) 872-9306.



Kanji Patel
Patent Examiner
Group Art Unit 2625
May 27, 2004